



BaikalMiner

Mini

Mining Algorithm Upgrade

(X11/X13/X14/X15/Quark/Qubit)

User's Guide



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1. Overview

This document describes the firmware update and OrangePI image burning to upgrade the Mini miner for supporting X11/X13/X14/X15/Quark/Qubit mining mode.

Before upgrading the Mini miner, read this document carefully.

After upgrading the Mini miner, enjoy the most profitable moment by navigating X11/X13/X14/X15/Quark/Qubit mining mode!!!

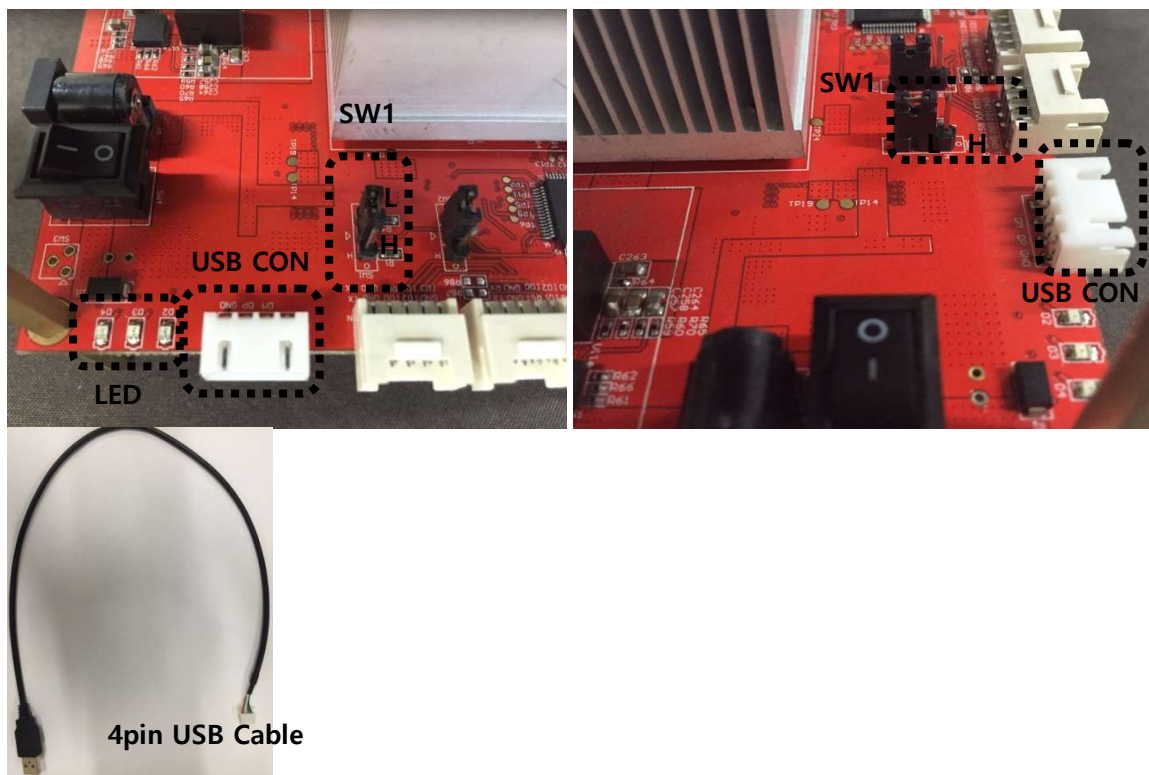
2. Firmware update

This chapter guides you how to update the firmware properly.

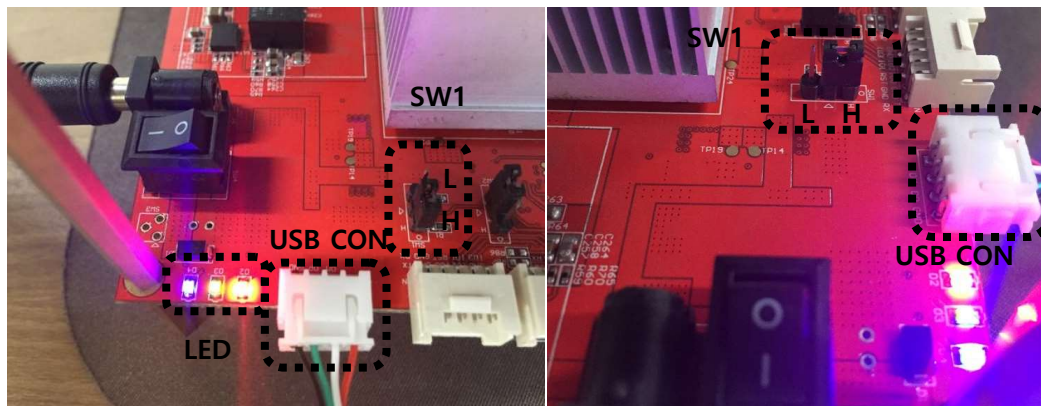
Please refer to the following guidance and make sure the each step is done successfully.

2.1 Preparation for firmware update

2.1.1 Configuration a Mini board



	Description
SW1	Boot mode setting. H : DFU boot mode , L : Normal
USB CON	4-pin USB connector. Use Baikalteam made 4pin USB Cable.
LED	Show DFU boot mode enter in 'H' of SW1. RGB is blinking one by one.
4-pin USB cable	USB A plug to 4-pin connector converter cable



- 1) **Power off a Mini miner.**
- 2) The jumper , SW1, set to 'H'.
- 3) Connect 4-pin usb cable with Black(GND),Green(DP),White(DM),Red(VBUS) into USB CON.
You must make sure that the power of Mini board is off before connecting 4-pin usb cable
- 4) Power on and make sure that LED is blinking RGB one by one.

2.1.2 Tools

Name	Description
dfu-util.exe	USB DFU(Device Firmware Utility) protocol based flash programming console application.
update_firmware_mini.bat	Firmware update batch file.
zadig_2.1.2.exe	USB Driver Installer
baikal_mini.bin	Firmware binary image.

- 1) Download all of tools from the following link.
File : Baikal_MINI_V2.1_0712.zip
<https://drive.google.com/open?id=0B1GBwN5-i39VbDM0ZW4wTIU4OWc>
<http://pan.baidu.com/s/1jHAGcLo>
- 2) Copy Baikal_MINI_V2.1_0712.zip to anywhere in your working directory.
Unzip Baikal_MINI_V2.1_0712.zip.

<input type="checkbox"/> Name	Date modified	Type	Size
baikal_mini.bin	6/27/2016 2:34 PM	BIN File	51 KB
dfu-util.exe	2/15/2016 3:49 PM	Application	275 KB
update_firmware_mini.bat	7/11/2016 10:49 AM	Windows Batch File	1 KB
zadig_2.1.2.exe	2/23/2016 7:56 PM	Application	5,070 KB

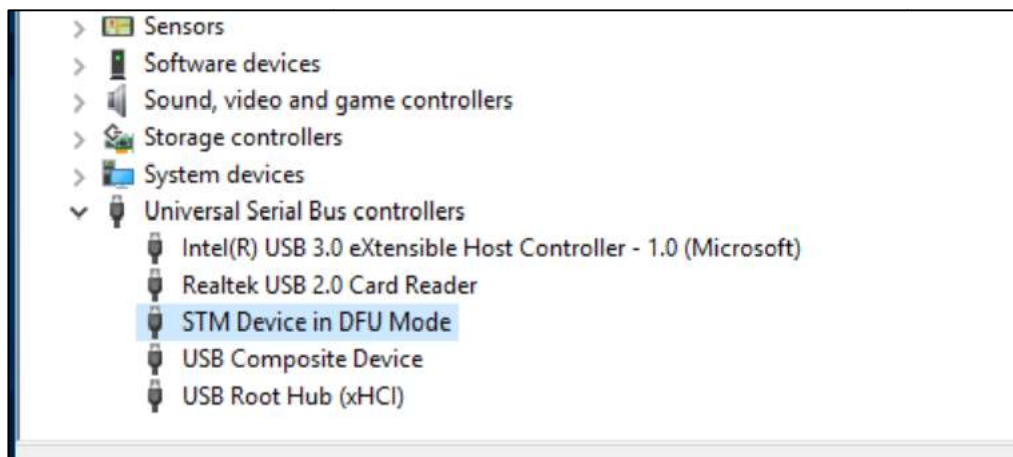


2.2 Process the firmware update

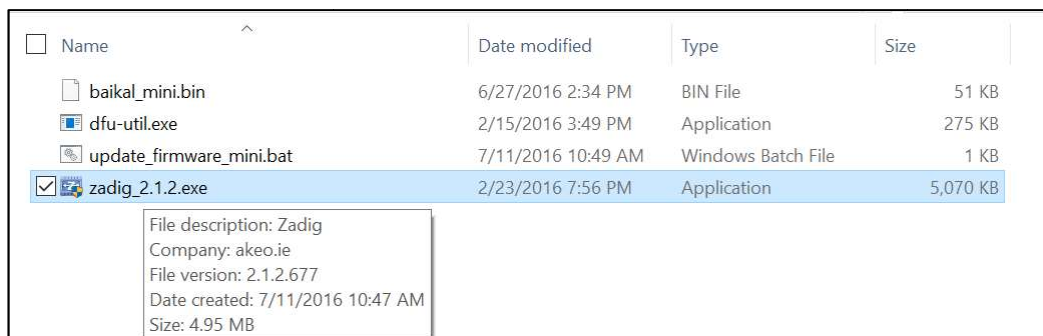
2.2.1 Install a DFU Util driver

- 1) Connect 4-pin USB cable to your PC.
- 2) Open the Device Manager in your Windows PC.

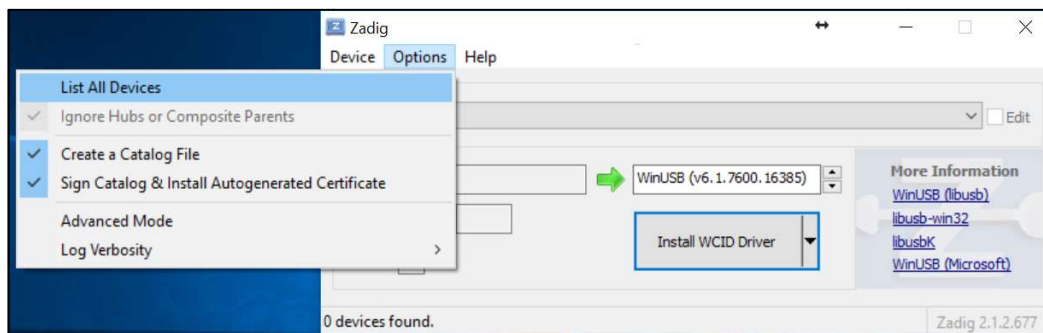
You can find '**STM Device in DFU Mode**' driver.



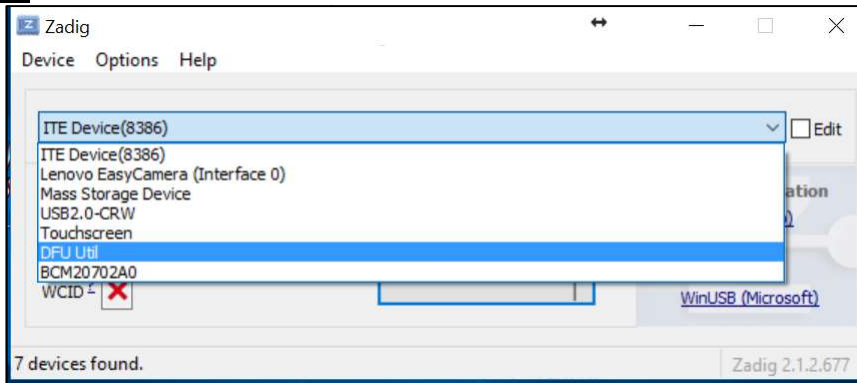
- 3) Execute zadig_2.1.2.exe.



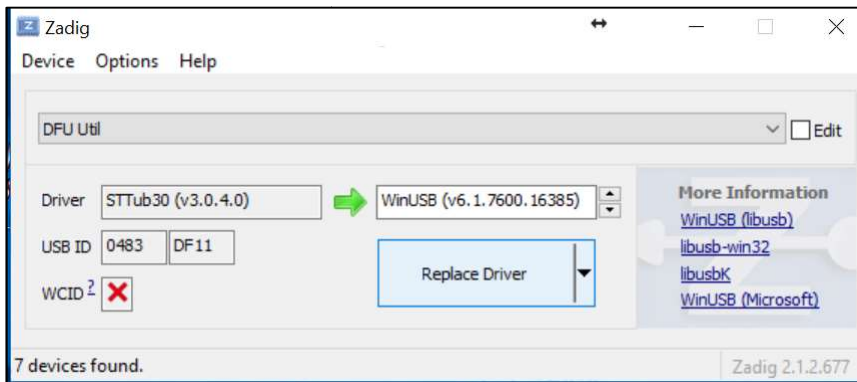
- 4) Select Options->List All Devices.



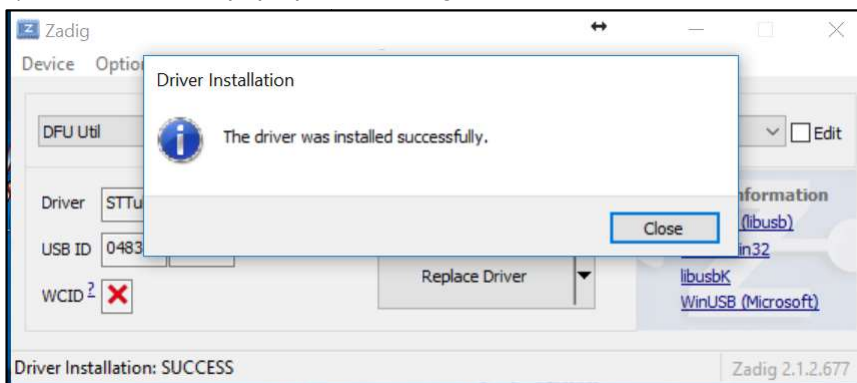
- 5) Select 'DFU Util' device in USB Device list.



6) Click the push button , 'Replace driver'.



7) You can see a pop up the message window.



8) You can find out the driver is changed in Device Manager.

The **DFU Util** driver is installed successfully.





2.2.2 Update the firmware

1) Execute **update_firmware_mini.bat**.

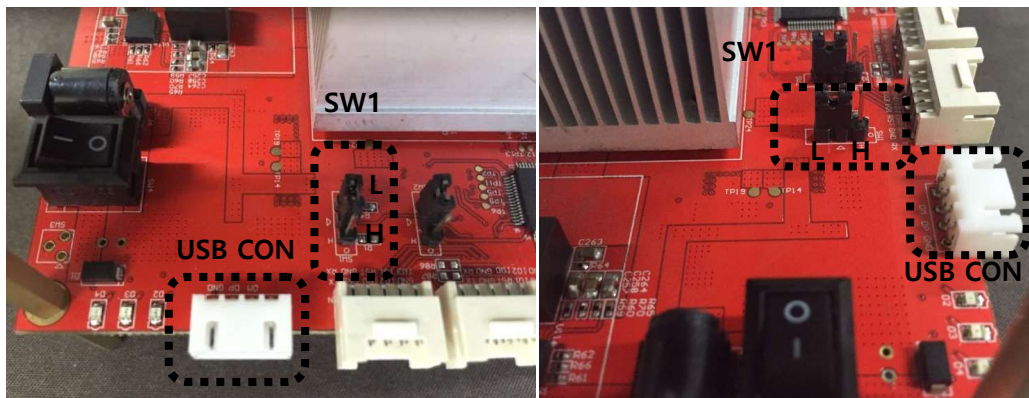
<input type="checkbox"/>	Name	Date modified	Type	Size
<input type="checkbox"/>	baikal_mini.bin	6/27/2016 2:34 PM	BIN File	51 KB
<input type="checkbox"/>	dfu-util.exe	2/15/2016 3:49 PM	Application	275 KB
<input checked="" type="checkbox"/>	update_firmware_mini.bat	7/11/2016 10:49 AM	Windows Batch File	1 KB
<input type="checkbox"/>	zadig_2.1.2.exe	7/11/2016 10:49 AM	Application	5,070 KB

Type: Windows Batch File
Size: 69 bytes
Date modified: 7/11/2016 10:49 AM

2) You can see the pop-up console window.

```
Copyright 2005-2009 Weston Schmidt, Harald Welte and OpenMoko Inc.  
Copyright 2010-2014 Tormod Volden and Stefan Schmidt  
This program is Free Software and has ABSOLUTELY NO WARRANTY  
Please report bugs to dfu-util@lists.gnumonks.org  
  
Invalid DFU suffix signature  
A valid DFU suffix will be required in a future dfu-util release!!!  
Opening DFU capable USB device...  
ID 0483:df11  
Run-time device DFU version 011a  
Claiming USB DFU Interface...  
Setting Alternate Setting #0 ...  
Determining device status: state = dfuIDLE, status = 0  
dfuIDLE, continuing  
DFU mode device DFU version 011a  
Device returned transfer size 1024  
DfuSe interface name: "Internal Flash"  
Downloading to address = 0x08002000, size = 51868  
Download [=====] 51% 26624 bytes
```

- 3) After 100% is progressed, the console window will be closed automatically.
- 4) The firmware update is finished successfully.
- 5) Power off a Mini miner.
- 6) Remove 4-pin usb cable from USB CON and the jumper, SW1, should be set to 'L'.



7) Power on a Mini miner.



3. Burning OrangePI image to SD Card

This chapter guides you how to burning OrangePI image to SD Card properly.

3.1 Preparation for burning

3.1.1 Download OragnePI image and disk imager tool

- 1) Download the OrangePI image from the following link.

File : OrangePI-PC_8G_V2.1_0712.img

<https://drive.google.com/open?id=0B1GBwN5-i39VbDM0ZW4wTIU4OWc>

<http://pan.baidu.com/s/1jHAGcLo>

- 2) Download Win32diskImager Utility.

File : Win32DiskImager-0.9.5-binary.zip

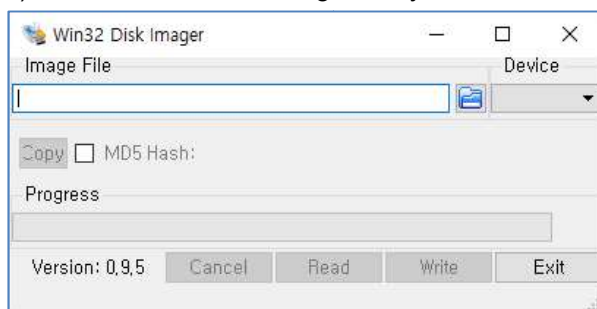
<https://sourceforge.net/projects/win32diskimager>

<https://drive.google.com/open?id=0B1GBwN5-i39VbDM0ZW4wTIU4OWc>

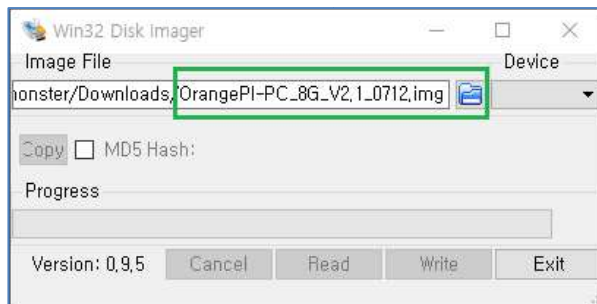
<http://pan.baidu.com/s/1jHAGcLo>

3.1.2 Process burning OrangePI image to SD Card

- 1) Remove the SD Card from OrangePI.
- 2) Insert the SD Card into your SD Card Reader and check which driver letter is assigned.
- 3) Run the win32diskImager utility.



- 4) Select OrangePI-PC_8G_V2.1_0712.img.

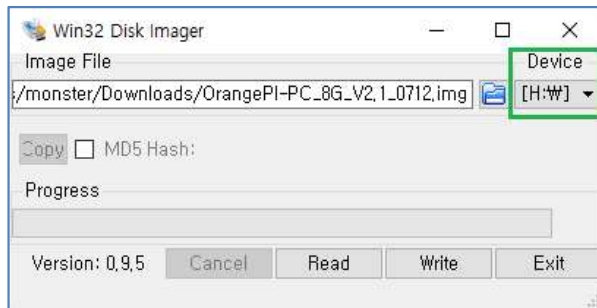


- 5) Select the driver letter of SD Card in the device box.

Be careful to select the correct drive; if you get the wrong one you can destroy your data on



the computer's hard disk!



- 6) Click the 'Write' and wait for completing it.
- 7) You are now ready to plug the SD Card into your OrangePI.